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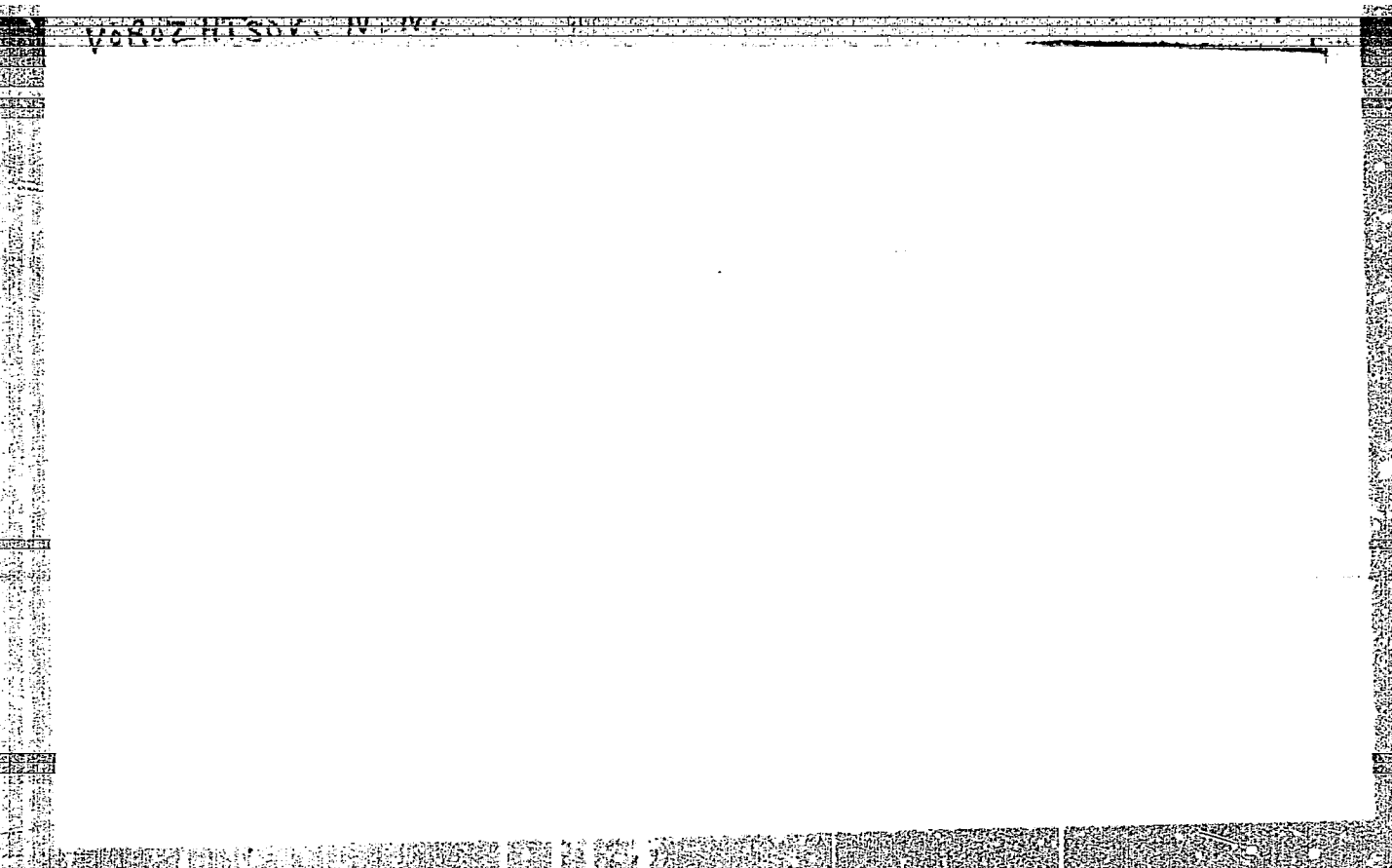
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VOROZHTSOV, N.M.

VOROZHTSOV, N.N., ml.; KOPTYUG, V.A.

Mechanism of the conversion of α -tetralone oxime into
 α -naphthylamine. Khim.nauka i prom. 2 no.5:657 '57. (MIRA 10:12)

1.Moskovskiy khimiko-tekhnologicheskii institut im. D.I. Mendeleeva.
(Naphthylamine) (Naphthalenone)

FROM THE OFFICE OF THE DIRECTOR, CIA

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VOROZHTSOV, N. N.

VOROZHTSOV, N. N.; PETUSHKOVA, A. T.

Study of isocoumarin derivatives. Part 2: Preparation and some reactions of the diethyl ester of isocoumarin-3,4-dicarboxylic acid. Zhur. ob. khim. 27 no. 8: 2282-2287 Ag '57. (MLBA 10:9)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni D. I. Mendeleeva.

(Coumarin) (Esters)

VOROZHTSOV, N.N.; KUTKEVICHUS, S.I.

Epichlorohydrin and aromatic amine reaction products. Part 2:

1,2,3,4-tetrahydro-3-oxy-7,8-benzoquinoline. Zhur. ob. khim.

27 no.9:2521-2525 S '57. (MIRA 11:3)

1. Moskovskiy khimiko-tekhnologicheskij institut imeni D.I.
Mendeleeva.

(Benzoquinoline)

VOROZHTSOV, N.N.

KARGIN, V.A.

5(3) P+ PHASE I BOOK EXPLOITATION

SOV/1589

Kindsaya nauk SSSR.

Kindsaya bol'shikh molekul; sbornik statey (Chemistry of Large Molecules; Collection of Articles) Moscow, Izd-vo AN SSSR, 1958. 293 p. (Series: Kindsaya nauk SSSR. Nauchno-populyarnaya seriya) 30,000 copies printed.

Compiler: G.V. Sklovskiy; Resp. Ed.: A.V. Topchiyev, Academician; Ed. of Publishing House: V.A. Boyarskiy; Tech. Ed.: I.M. Guseva.

PURPOSE: This book is intended for a wide circle of readers including those who have had no training in chemistry. It can also serve as a manual for propagandists, teachers, and journalists.

Chemistry of Large Molecules (Cont.)

SOV/1589

COVERAGE: This collection of articles reflects the trend for the future development of the Soviet chemical industry as indicated by the May plenary session of the Central Committee of the Communist Party within the framework of the new Seven Year Plan. These articles were published in newspapers and journals, the authors, scientists and industry workers, developed the theme of accelerated development of the chemical industries and sciences, with stress on the manufacture of synthetic fibers, plastics, and other materials. Some of the articles were abridged, revised, or enlarged. The articles were selected so as to give an adequate survey of the chemistry and technology of high-molecular-weight compounds and their use in industry, agriculture, and in the manufacture of consumers' goods. Mentioned are raw materials for the production of polymers. This book belongs to the popular-science series of the Academy of Sciences. Similar volumes are intended for future publication. No references are given.

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Card 7/8

AUTHORS: Vorozhtsov, N. N. jun., Yakobson, G. G. SOV/156-58-1-29/46

TITLE: Production of Aromatic Fluorine Derivatives From Chlorine Derivatives (Polucheniye aromaticeskikh ftorproizvodnykh iz khlorproizvodnykh)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 1, pp. 122 - 124 (USSR)

ABSTRACT: The authors found already previously (Ref 1) that 2,4-dinitro-fluorobenzene is formed with a more than 90% yield by a heating of 2,4-dinitro-chlorobenzene with anhydrous potassium fluoride. In view of the increasing interest for aromatic fluoro-nitro-compounds as possible insecticides and antiseptica (Ref 2) it would be of importance to extend the aforementioned method also to other compounds. The authors found that by the action of potassium fluoride at from 170 to 190° the chlorine atoms may be replaced by a fluorine atom if the former are activated by substituents of second order which are formed in both o- and p-position and if one of the latter is a nitro-group. If 2 active chlorine atoms are contained in the molecule, the two halides enter the reaction. The following compounds were obtained

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Production of Aromatic Fluorine Derivatives From
Chlorine Derivatives

SOV/156-58-1-29/46

in this way: I) 1,3-difluoro-4,6-dinitrobenzene with a satisfactory yield of both 1,3-dichloro- and 1,3-fluoro-chloro-4,6-dinitrobenzene. In connection with II) 4-fluoro-3-nitro-phenyl-methyl-sulfone, the hitherto undescribed 4,4'-bis-methylsulfone-2,2-dinitro-diphenyl-ether (III) is formed. Since the previous work written by the authors (Ref 1) had gone to the press, the report delivered by Finger and Kruse (Kruze)(Ref 3) who also worked out methods of producing fluoro-nitro-compounds by heating corresponding chlorine-derivatives was published. The results obtained by these American authors are summarized. The methods of production, yields, and some constants of the compounds dealt with are given in an experimental part. There are 7 references, 1 of which is Soviet.

ASSOCIATION: Kafedra tekhnologii promezhutochnykh produktov i krasiteley
Moskovskogo khimiko-tekhnologicheskogo instituta im.D.I.Men-
deloyeva(Professorial Chair of the Technology of Inter-
mediate Products and Dyes of the Moscow Chemical-Technological
Institute imeni D.I.Mendeleyev)

Card 2/3

• Production of Aromatic Fluorine Derivatives From
• Chlorine Derivatives

SOV/156-58-1-29/46

• SUBMITTED: October 16, 1957

Card 3/3

AUTHORS: Vorozhtsov, N. N., jun., SOV/156-58-2-31/48
Przhiyalgovskaya, N. M., Babiyeviskiy, K. K.

TITLE: On the Problem of the Mechanism of Catalytic Isomerization of
the Naphthalene Monochloride (K voprosu o mekhanizme kata-
liticheskoy izomerizatsii monokhlornaftalinov)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya
tekhnologiya, 1958, Nr 2, pp. 328 - 329 (USSR)

ABSTRACT: The authors proved earlier (Ref 1) that only hydrogen chloride
and hydrogen bromide enter into the exchange reaction in the
interaction between the naphthalene haloids and hydrogen
haloids on aluminum oxide at 350°. This reaction does not
take place in the case of hydrogen fluoride. However, the
incapacity of the naphthalene fluorides of isomerization
cannot be considered as proved. Since data are lacking in
publications, the authors tried to carry out the isomerization
of the naphthalene monochloride under conditions which render
an exchange reaction impossible. Naphthalene Fluoride was
caused to pass through aluminum oxide at 350°. At the same
time gaseous hydrogen fluoride was introduced into the tube.
The experimental results showed that the naphthalene fluoride

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On the Problem of the Mechanism of Catalytic Isomerization of the Naphthalene Monochloride

SOV/156-58-2-31/48

cannot be isomerized under these conditions, in contrast to naphthalene bromides and -chlorides (Ref 1). This fact enabled the authors to carry out experiments in order to clear the rules governing the intramolecular displacement of the haloid in the isomerization of the naphthalene monochlorides. The first author (Ref 2) proved by means of tracer atoms that in the catalytic isomerization of 1-naphthalene chloride at 355 - 365° on an Al-Si catalyst chlorine is shifted mainly (93,8% at least) to the position 2. It was interesting to explain how chlorine would behave in the 1-naphthalene chloride under isomerization conditions, if the adjacent position 2 is occupied by a fluorine atom. It is proved that fluorine does not change its position. For this purpose the isomerization of the 1-chloro-2-fluoro naphthalene by means of passing through aluminum oxide in a hydrofluoric acid current was tried. The experiments proved that 1-chloro-2-fluoro naphthalene is not isomerized. 1-chloro naphthalene is transformed into the 2-isomer (33%) under the same conditions. This evidence may be considered as an additional confirmation of the transition of a chlorine

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On the Problem of the Mechanism of Catalytic Isomerization of the Naphthalene Monochloride

SOV/156-58-2-31/48

atom only from position 1 to 2. The fact that chlorine does not occupy another unoccupied position (e.g. position 4) points to the earlier mentioned (Ref 2) mechanism of the intramolecular isomerization of the naphthalene monochlorides which permits the intermediate formation of halogenonium ions. An experimental part follows. There are 7 references, 2 of which are Soviet.

ASSOCIATION: Kafedra tekhnologii organicheskikh krasiteley i promezhutochnykh produktov Moskovskogo khimiko-tehnologicheskogo instituta im. D.I.Mendeleyeva (Chair of Technology of Organic Dyes and Intermediate Products of the Moscow Institute of Chemical Technology imeni D.I.Mendeleyev)

SUBMITTED: October 1, 1957

Card 3/4

On the Problem of the Mechanism of Catalytic Isomeri-
zation of the Naphthalene Monochloride

SOV/156-58-2-31/48

Card 4/4

AUTHORS: Vorozhtsov, N. N., jun., Yakobson, G. G. SOV/156-58-2-36/48

TITLE: Identification of the Oxycompounds as 4,6-Dinitro Resorcin Ether (Note III From the Series "Aromatic Fluorine Derivatives" (Refs 1,2)) (Identifikatsiya oksisoyedineniy v vide efirov 4,6-dinitrorezortsina (Soobshcheniye III iz serii "Aromaticheskiye ftorproizvodnyye"))

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 2, pp. 340 - 348 (USSR)

ABSTRACT: In recent time methods of the identification mentioned in the title were worked out (Refs 3,4). The applicability of this method is limited by the fact that many ethers of 2,4-dinitro phenol are liquid or crystallizable only with difficulty. The ethers described in publications and mentioned in the title have considerably higher melting points than the last mentioned. If the oxy compounds are heated with a theoretical quantity of 1,3-difluorine-4,6-dinitro benzene in the presence of potassium fluoride (Ref 4), the ethers mentioned in the title are formed with an almost quantitative yield. They are crystalline substances

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Identification of the Oxycompounds as 4,6-Dinitro Resorcin Ether (Note III From the Series "Aromatic Fluorine Derivatives (Refs 1,2)) SOV/156-58-2-36/48

with a distinct melting temperature. The authors produced ethers of all normal primary alcohols with a number of carbon atoms of 1 - 9, furthermore several higher alcohols and phenols. The dependence of the melting temperatures of the ethers of normal primary alcohols on the number of carbon atoms in the alcohol is strange. At first the melting temperatures decrease with rising number of carbon atoms and reach a minimum (46° -hexyl alcohol ether). In the case of a further increase of the number of carbon atoms the melting temperature rises up to 95° (dioctyl ether) and is then reduced rapidly in the case of dinonyl ether (33°, Fig 1). Mixed samples of ethers with approximate melting temperatures cause a rapid depression. This makes possible their application for the identification of the alcohols. All investigated primary and secondary alcohols and phenols react easily with 1,3-difluorine-4,6-dinitro benzene. A reduced yield of the ether from phenyl-methyl carbinol is explained apparently by a slight dehydration of the latter. Tertiary alcohols: trimethyl-carbinol and dimethyl-phenyl

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Identification of the Oxycompounds as 4,6-Dinitro Resorcin Ether (Note III From the Series "Aromatic Fluorine Derivatives" (Refs 1,2)) SOV/156-58-2-36/48

carbinol do not react with 1,3-difluorine-4,6-dinitro benzene under the described conditions. The last mentioned substance reacts with alcohols in the presence of potassium fluoride similarly to the fluorine derivative, however, considerably more slowly. Therefore it is not expedient to use it for the identification. There are 1 figure, 1 table, and 5 references, 3 of which are Soviet.

ASSOCIATION: Kafedra tekhnologii organicheskikh krasiteley i promezhutochnykh produktov Moskovskogo khimiko-tekhnologicheskogo instituta im.D.I.Mendeleyeva (Chair of Technology of Organic Dyes and Intermediate Products of the Moscow Institute of Chemical Technology imeni D.I.Mendelejev)

SUBMITTED: October 17, 1957

Card 3/4

Identification of the Oxycompounds as 4,6-Dinitro SOV/156-58-2-36/48
Resorcin Ether (Note III From the Series "Aromatic Fluorine Derivatives"
(Refs 1,2))

Card 4/4

AUTHORS: Vorozhtsov, Iun., N.N., Ryulina, A.I. SOV/63-3-6-43/49

TITLE: Interaction of 4,5-Diamino-1-Naphthol With Carbonic Acids and Anhydride of Acids (Vzaimodeystviye 4,5-diamino-1-naftola s karbonsymi kislotami i angidridami kislot)

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1958, No. 11, pp. 840-841 (USSR)

ABSTRACT: Reaction of dichlorhydrate of 4,5-diamino-1-naphthol with 6 times the same quantity of 85-90% formic acid produced the hydrochloric acid salt of 7-oxyperimidin. Other experiments were made with NH₄OH solution, iron chloride, phthalic anhydride, etc. In most cases perimidines were obtained. There are 2 references, 1 of which is Soviet and 1 German.

ASSOCIATION: Moskovskiy Khimiko-tehnologicheskii institut imeni D.I. Mendeleeva (Moscow Chemical-Technological Institute imeni D.I. Mendeleev)

SUBMITTED: October 11, 1958

Card 1/1

USCOMM-DC-60,875

AUTHORS: Vorozhtsov N.N., Corresponding Member of the Academy of Science of the USSR, Doctor of Chemical Science,
Lisitsyn V.N., Candidate of Chemical Science, Agafonov A.V.
and Krasivichev V.V., Candidates of Technical Science,
and Abayeva B.T., Candidate of Chemical Science

TITLE: Transformation of Higher Homologues of Phenol into Lower Ones (Prevrashcheniye vysshikh gomologov fenola v nizshiye)

PERIODICAL: Koks i Khimiya, 1958, Nr 11, pp 42-47 (USSR)

ABSTRACT: The results of an investigation on the dealkylation of technical xlenol with simultaneous alkylation of benzole in a pilot plant of the All-Union Scientific Research Institute of the Petroleum Industry in which bead aluminosilicate was used are described. This was a continuation of the previously published work (Ref 1) on the transformation of xylenols (on interaction with benzole) into phenols and cresols on cracking under mild conditions on an aluminosilicate catalyst. The experimental plant used (Fig 1) is outlined. It was established that, on passing xlenol in mixture with benzole

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Transformation of Higher Homologues of Phenol into Lower Ones SOV/68-58-11-14/25

(1 : 3.65 by weight) over aluminosilicate catalyst at temperatures in the range 300-400°C and volume velocities of 0.42-1.47hr⁻¹, up to 60% (on weight of starting xylene) of phenolic compounds (phenol, o-, m- and p-cresols, xylenols) including 20-22% of phenolic-cresolic fraction, are obtained. Simultaneously 11-19% of benzene homologues with a boiling temperature of 100-185°C and 13-18% of neutral compounds with boiling temperatures above 185°C are formed. 8-25% of coke is deposited on the catalyst. The influence of the temperature of the reaction, the volume velocity of reactants (Table 1), additions of water vapour and various proportions of benzole (Table 2) on the transformation of xylene and changes in the activity of the catalyst with time of operation (Table 3) were established. It was found that at temperatures 300-320°C and volume velocities 0.92-1.47hr⁻¹ more phenolic-cresolic fraction and less of neutral compounds and coke on the catalyst is obtained (taking into consideration the transformation of xylene). At 300°C and a volume velocity 0.92hr⁻¹ 330kg of

Card 2/3

Transformation of Higher Homologues of Phenol into Lower Ones

SOV/68-58-11-14/25

phenolic-cresolic fraction and about 200kg of benzene homologues with a boiling temperature 100-185°C can be obtained from 1 ton of xylenol.
There are 3 tables, 3 figures and 6 references (4 Soviet, 1 English and 1 German)

ASSOCIATION: MKhTI im. D.I. Mendeleeva, VNI NP

Card 3/3

VOROZHTSOV, N.N., ml.; SHEYN, S.H.

Interchange reaction of sulfo and hydroxyl groups in aromatic series. Part 1: Study of the exchange kinetics of the sulfo group in the sodium salt of β -naphthalenesulfonic acid and the hydroxyl group. Ukr. khim. zhur. 24 no. 2:208-212 '58. (MIRA 11:6)

1. Nauchno-issledovatel'skiy institut organicheskikh poluproduktov i krasiteley im. K.Ye. Voroshilova, filial v g. Rubezhnoye.
(Naphthalenesulfonic acid)
(Chemical reaction, Rate of)

VOROZETSOV, N.N., ml. ; SHEYN, S.M.

Interchange reaction of sulfo and hydroxyl groups in aromatic series. Part 2: Study of the exchange kinetics of the sulfo group and the hydroxyl group in the sodium salts of 2,6- and 2,7-naphthalenedisulfonic acids. Ukr. khim. zhur. 24 no. 2:213-216 '58.
(MIRA 11:6)

1. Nauchno-issledovatel'skiy institut organicheskikh poluproduktov i krasiteley im. K.Ye. Voroshilova, filial v g. Ruzhnoye.
(Naphthalenedisulfonic acid)
(Chemical reaction, Rate of)

SHEYN, S.M.; VOROZHTSOV, N.N., ml.

Exchange reaction between a sulfo group and an oxy group in the aromatic series. Part 3: Investigation of the kinetics of the reaction of sodium salts of 2,6- and 2,7-naphtholsulfonic acids with sodium hydroxide solutions. Ukr.khim.zhur. 24 no.5:643-647 ' 58.

(MIRA 12:1)

1. Nauchno-issledovatel'skiy institut organicheskikh poluproduktov i krasiteley imeni K.Ye. Voroshilova, filial v g. Rubezhnoye.
(Naphtholsulfonic acid) (Sodium hydroxide)
(Chemical reaction, Rate of)

SHEYN, S.M.; VOROZHTSOV, N.N., ml.

Reaction of the substitution of sulfo groups by oxy groups in the aromatic series. Part 4: Investigation of kinetics of the reaction of sodium salt of 1,5-naphthalenedisulfonic acid and 1,5-naphthalenedisulfonic acid with sodium hydroxide solutions. Ukr.khim.zhur. 24 no.6:757-760 '58.
(MIRA 12:3)

1. Nauchno-issledovatel'skiy institut organicheskikh poluproduktov i krasiteley im. K. Ye. Voroshilova, filial v.g. Rubezhnoye.
(Naphthalenedisulfonic acid) (Sodium hydroxide)
(Chemical reaction, Rate of)

VOROZHTSOV, N. N.

AUTHORS:

Vorozhtsov, N. N. jun. , Yakobson, G. G.

79-1-9/63

TITLE:

On the Synthesis of 2,4-Dinitrophenyl Derivatives of Oxy- and Mercapto Compounds and Amines (K polucheniyu 2,4- dinitro-fenil'nykh proizvodnykh oksi - i merkaptosoyedineniy i aminov)

PERIODICAL:

Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 1, pp.40-44 (USSR)

ABSTRACT:

The authors earlier determined that 2,4-dinitrochlorobenzene enters into reaction with oxy compounds in the presence of anhydrous potassium fluoride under the formation of ethers of 2,4-dinitrophenol. It became evident that the fluorine derivative of this benzene reacts more smoothly with oxycompounds in the presence of potassium fluoride than with the use of other bases, the reaction from beginning to end taking place in a neutral medium. With the use of alcohols and phenols almost quantitatively pure 2,4-dinitrophenyl derivatives are obtained from the reaction mass (see formulae). The 2,4-dinitrophenyl derivatives of secondary oxycompounds are obtained with better yields in the presence of anhydrous potassium fluoride than in the presence of the triethylamine usually used.

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On the Synthesis of 2,4-Dinitrophenyl Derivatives of Oxy- and Mercapto
Compounds and Amines 79-1-9/63

(In one case like 79 to 28 %!). The 2,4-dinitrophenyl derivative of phenylmethylecarbinol is obtained with a 28 % yield in the presence of potassium fluoride, whereas with triethylamine only 11 % can be attained. In this case the 2,2',4,4'-tetranitrodiphenyl ether (43%) is the main product of the reaction. The mercapto compounds with 2,4-dinitrochlorobenzene on heating in the presence of potassium fluoride quantitatively yield 2,4-dinitrophenyl derivatives in a pure state (see formulae). In the absence of potassium fluoride the mercapto compounds do not react with 2,4-dinitrochlorobenzene and 2,4-dinitrofluorobenzene. The 2,4-dinitrophenyl derivatives of the amines, products of their conversion with 2,4-dinitrochloro- and 2,4-dinitrofluoro-benzene, can under the same conditions be isolated from the reaction mass purely and quantitatively direct. There are 2 tables, and 13 references, 2 of which are Slavic.

ASSOCIATION: **Moscow Chemical-Technological Institute imeni D.I. Mendeleev**
(Moskovskiy khimiko-tehnologicheskii institut im. D. I. Mendeleeva)

Card 2/3

On the Synthesis of 2,4-Dinitrophenyl Derivatives of Oxy- and Mercapto
Compounds and Amines 79-1-9/63

SUBMITTED: January 8, 1957

AVAILABLE: Library of Congress

Card 3/3

1. Fluorines 2. Alcohols 3. Phenols 4. Chemistry

VOROZHTSOV, N. N.

79-2-22/64

AUTHORS: Vorozhtsov, N. N. , Koptug, V. A.

TITLE: Catalytic Transformations of Haloid Derivatives of the Aromatic Series (Kataliticheskiye prevrashcheniya galoïdproizvodnykh aromati-cheskogo ryada) IV. Investigation of the Catalytic Isomerization Mechanism of Monochloronaphthalenes by the Method of Marked Atoms (IV. Izucheniye mekhanizma kataliticheskoy izomerizatsii monokhlor-naftalinov metodom mechenykh atomov)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 2, pp. 372 - 383 (USSR)

ABSTRACT: In the works of an author (references 2, 3), which are devoted to the investigation of the gas-phase catalytic isomerization of mono-chloro- and monobromonaphthalenes in aluminum oxide and aluminum silicate, values were obtained which indicate an intramolecular course of the reaction. (Analogous values were obtained by Brezh-neva and Roginskiy (reference 30) in the field of liquid-phase isomerization.) In the present paper the authors show that 2-chloro-naphthalene-1-C¹⁴ is mainly formed in the isomerization of 1-chloro-naphthalene-1-C¹⁴ with aluminum silicate as a catalyst at 355-360°C. This fact excludes the possibility of an intermediate formation of naphthalene, as in this case an equimolar mixture of 2-chloronaph-thalenes marked in the positions 1,4,5 and 3 would have to be formed

Card 1/4

79-2-22/64

Catalytic Transformations of Haloid Derivatives of the Aromatic Series. IV. Investigation of the Catalytic Isomerization Mechanism of Monochloronaphthalenes by the Method of Marked Atoms

in the isomerization. 1-chloronaphthalene-1-C¹⁴ was obtained from the chlorhydrate of 1-naphthylamine-1-C¹⁴ according to the reaction of Zandmayer (references 6 and 7) with a yield of ~50%. The isomerization was performed with an aluminum silicate catalyst in a hydrogen chloride current at 355 - 365°C. 2-chloronaphthalene was converted to 2-naphthol by means of 0.8 n. sodium hydroxide solution at 365°C. By its nitrosation (reference 8) 1-nitroso-2-naphthol was obtained. The 2-isomer formed in the isomerization of 1-chloronaphthalene-1-C¹⁴ consists in 93,8% of 2-chloronaphthalene-1-C¹⁴. This means that at least 91,7% of the 1-chloronaphthalene molecules isomerize to 2-chloronaphthalene without an intermediate formation of naphthalene. The "carbon" ions (karboniyevyye iony) (I) and (III) forming on addition of the proton to the molecule of the naphthalene halide are analogous to the intermediate cations. These form in the electrophile halogenation of naphthalene (confer reference 1). "Fluorone"-compounds were hitherto not obtained. The presence of the proton necessary for the course of the isomerization explains the specially smooth course of the isomerization of naphthalene halides in the presence of hydrogen halides (in their ab-

Card 2/4

Catalytic Transformations of Haloid Derivatives of the Aromatic Series. IV. Investigation of the Catalytic Isomerization Mechanism of Monochloronaphthalenes by the Method of Marked Atoms

79-2-22/64

Since the protons yield the catalyst). The exchange of halides, in the interaction of naphthalene halides and hydrogen halides (reference 3), shall not be considered a result of the isomerization reaction, but as a parallel process. This is confirmed by the fact that under the conditions when fluornaphthalenes do not isomerize, fluorine is nevertheless substituted by chlorine. Summary: 1) The method of the splitting of 2-chloronaphthalene was worked out. This permits the removal of the carbon atom in the form of CO_2 which is in position 2. The method may also be applied to other 2-substituted naphthalenes that can be converted to 2-naphthol. 2) The earlier not described 1-naphthylamine-1- C^{14} and 1-chloronaphthalene-1- C^{14} were synthesized. 3) In the catalytic isomerization of 1-chloronaphthalene-1- C^{14} at 355-365°C the chlorine is mainly (93,8%) displaced to position 2. This excludes (for the given conditions) the intermolecular isomerization mechanism of monochloronaphthalenes with an intermediate formation of naphthalene. 4) The authors suggested the intramolecular isomerization mechanism of monochloronaphthalenes which admits an intermediate formation of halogen ions. There are 3 figures, 1 table, and 30 references, 14 of which are Slavic.

Card 3/4

Catalytic Transformations of Haloid Derivatives of the Aromatic Series. IV. Investigation of the Catalytic Isomerization Mechanism of Monochloromaphthalenes by the Method of Marked Atoms 79-2-22/64

ASSOCIATION: Chemical-Technological Institute imeni D. I. Mendeleyev, Moscow
(Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Mendeleyeva)

SUBMITTED: January 22, 1957

AVAILABLE: Library of Congress

Card 4/4

AUTHORS: Vorozhtsov, N. N. (jun.), Koptug, V. A. SOV/79-28-6-49/63

TITLE: The Conversion Mechanism of α -Tetralonoxime to α -Naphthylamine (Mekhanizm prevrashcheniya oksima α -tetralona v α -naphthylamin)

PERIODICAL: Zhurnal obshchey khimii, 1958, Vol. 28, Nr 6, pp. 1646 - 1656 (USSR)

ABSTRACT: The authors investigated the conversion of α -tetralon to α -naphthylamine on the conditions described by Schroeter (Shreter) and his collaborators (Ref 11); i.e. on its heating with 1,3-mole acetic anhydride in glacial acetic acid in the presence of hydrogen chloride at 100°. Besides the earlier obtained (Ref 11) chlorine hydrate of α -naphthylamine (31 %) and N-acetyl- α -naphthylamine (3,3 %) also α -tetralon (10,2 %), 2-chloro-1-keto-1,2,3,4-tetrahydronaphthalene (2,0 %) (formula I) and 2-methyl-3,4-dihydronaphth-1',2':4,5-oxazole (II, 8,6 %) are obtained. Compound (I) was identified as oxime (Ref 14). The structure of the earlier not described compound (II) was proved by the dehydration with diphenylsulfide (Ref 15) to the 2-methyl-(naphth-1',2':4,5-oxazole) (identified as picrate and

Card 1/3

The Conversion Mechanism of α -Tetralonoxime to α -Naphthylamine SOV/ 79-28-6-49/63

methyl iodide). The determination of the nature of the secondary products of the above mentioned reaction makes it possible to explain the mechanism of the conversion of the α -tetralonoxime to α -naphthylamine. The O-acetyl derivative of the α -tetralonoxime occurs as first product of the reaction (III). This compound converts on heating in glacial acetic acid at 100° in the presence of hydrogen chloride to the α -naphthylamine (scheme 1), N-acetyl- α -naphthylamine, α -tetralon, 2-chloro-1-keto-1,2,3,4-tetrahydronaphthalene and 2-methyl-3',4'-dihydronaphth-1',2':4,5-oxazole. The structure of the latter thus was determined by conversion (dehydration) to 2-methyl-(naphth-1',2':4,5-oxazole) by means of diphenylsulfide, as well as synthetically by proceeding from the 2-bromo-1-keto-1,2,3,4-tetrahydronaphthalene and acetamide. The 2-methyl-3',4'-dihydronaphth-1',2':4,5-oxazole converts on boiling with hydrochloric acid to β -naphthol. There are 33 references, 3 of which are Soviet.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut im. D. I. Mendeleyeva (Moscow Chemo-Technological Institute imeni D. I. Mendeleyev)

Card 2/3

The Conversion Mechanism of α -Tetralonoxime to α -Naphthylamine

SOV/79-28-6-49/63

SUBMITTED: June 3, 1957

1. Amines
2. Organic compounds--Chemical reactions

Card 3/3

AUTHORS:

Vorozhtsov, N. N., Ml.,
Kutkevichus, S. I.

SOV/79-28-10-12/60

TITLE:

Investigation of the Reaction Products Epichlorohydrin With
Aromatic Amines (Issledovaniye produktov vzaimodeystviya
epikhlorgidrina s aromaticeskimi aminami)
III. Action of Hydrochloric Acid and Thionyl Chloride on
3-Oxy-1,2,3,4-Tetrahydro-7,8-Benzoquinoline and on 3-Oxy-
1,2,3,4-Tetrahydro-5,6-Benzoquinoline (III. Deystviye solyanoy
kisloty i khloristogo tionila na 3-oksi-1,2,3,4-tetragidro-
7,8-benzokhinolin i na 3-oksi-1,2,3,4-tetragidro-5,6-
benzokhinolin)

PERIODICAL:

Zhurnal obshchey khimii, 1958, Vol 28, Nr 10, pp 2682-2687
(USSR)

ABSTRACT:

The investigation of the action of hydrochloric acid and of
thionyl chloride on 3-oxy-1,2,3,4-tetrahydro-7,8-benzoquinoline
(I)(Ref 1) was carried out in order to substitute the hydroxyl
group by chlorine, which, however, failed. On heating (I) with
hydrochloric acid at 170-200° under pressure, a mixture was
obtained that consisted of two bases containing no halogen.
One of the bases was a 7,8-benzoquinoline (III)(42-44%), and

Card 1/3

Investigation of the Reaction Products

SOV/79-28-10-12/60

Epichlorohydrin With Aromatic Amines. III. Action of Hydrochloric Acid and Thionyl Chloride on 3-Oxy-1,2,3,4-Tetrahydro-7,8-Benzoquinoline and on 3-Oxy-1,2,3,4-Tetrahydro-5,6-Benzoquinoline

the other was its derivative (IV)(27-33%). The transformation apparently begins with the separation of one molecule of water under the formation of one 1,2- or 1,4-dihydro derivative of benzoquinoline (II) which disproportionates into benzoquinoline (III) and its tetrahydro derivative (IV)(Scheme 1). Hydrochloric acid acts in the same way on 3-oxy-1,2,3,4-tetrahydro-5,6-benzoquinoline (V). Compounds (VI) and (VII)(Scheme 2) are formed in the same quantities. With the action of thionyl chloride on the 3-oxy-1,2,3,4-tetrahydro derivatives of the benzoquinolines results were obtained that had not been expected at all. On a heating of (I) with thionyl chloride a chlorine-containing base was obtained that had the formula $C_{13}H_8NCl$. A compound of the same composition with the same melting point was also obtained by Polish chemists (Ref 4) (VIII). Their synthesis was repeated. It was found that, as with the mixture of the picrates obtained, the mixed sample of the compound obtained does not show any decrease of the melting point with 6-chloro-7,8-benzoquinoline. There are

Card 2/3

Investigation of the Reaction Products
Epichlorohydrin With Aromatic Amines. III. Action of Hydrochloric Acid and
Thionyl Chloride on 3-Oxy-1,2,3,4-Tetrahydro-7,8-Benzoquinoline and on
3-Oxy-1,2,3,4-Tetrahydro-5,6-Benzoquinoline

SOV/79-28-10-12/60

10 references, 1 of which is Soviet.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut imeni
D. I. Mendeleyeva
(Moscow Chemical Technological Institute imeni D. I.
Mendeleyev)

SUBMITTED: August 7, 1957

Card 3/3

AUTHORS:

~~Vorozhtsov, N. N.~~ jun.,
Koptjug, V. A.

SOV/79-28-11-18/55

TITLE:

On the Dehydration of " α -Tetralon" With Selenium, and
on the Synthesis of 1-Naphthol-1-C¹⁴ (O dogidrirovani
 α -tetralona selenom i sinteze 1-naftola-1-C¹⁴)

PERIODICAL:

Zhurnal obshchey khimii, 1958, Vol 28, Nr 11,
pp 2981 - 2987 (USSR)

- ABSTRACT:

Of all possible methods for synthesizing 1-naphthene the dehydration of " α -tetralon" (I) with selenium at 330-335° for 9 hours as carried out by Darzens and Levy (Ref 2) (Darzan, Levi) met with the greatest interest. According to its description this naphthol was obtained in a yield of 75%, whereas its yield in the dehydration of " α -tetralon" with sulfur (240°, 4 hours) amounted to 40%. The authors checked the data of the two scientists and found that on heating " α -tetralon" at 330° during 10 hours with selenium a complex compound of reaction products is formed in which the 1-naphthol corresponded only to a yield of 25.7%. From the mixture also the " α -tetralon"

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On the Dehydration of "α-Tetralon" With Selenium, and
on the Synthesis of 1-Naphthol-1-C¹⁴

SOV/79-28-11-18/55

(23%), a neutral product of the composition C₂₀H₁₂O (12.2%), and an amorphous compound of phenol character were separated. The compound C₂₀H₁₂O, according to its melting point and according to that of the picrate, seems to be dinaphtho-(1',2' : 2,3; 1'',2'' : 4,5)-furan (II), the formation of which can be explained according to the scheme 1. The data by the above scientists are also refuted by the fact that 1-naphthol is capable of reacting with selenium under the formation of furan (IV) (Ref 5). From the reaction mass the authors could separate only 15% initial 1-naphthol at 330°C during 10 hours. The yield of (IV) amounted to 31% (of the unpurified product!). Also the following dehydration experiments of the substituted "α-tetralon" and of other cyclic ketones tended to refute the data given by these two scientists. The authors therefore had to turn away from the complex dehydration of "α-tetralon" (I) with selenium and tried to achieve its transformation into 1-naphthol by the bromination and separation of

Card 2/4

On the Dehydration of "α-Tetralon" With Selenium, and SOV/79-28-11-18/55
on the Synthesis of 1-Naphthol-1-C¹⁴

hydrogen bromide (Scheme 2). This bromination takes place easily to the 2-bromo-1-keto-1,2,3,4-tetrahydro naphthalene (V). The separation of hydrogen bromide from (V) under the formation of 1-naphthol is better carried out with triethylamine (75-76%) than with diethyl aniline. Based on the results obtained the synthesis of 1-naphthol-1-C¹⁴ in a yield of 63.5% was carried out (calculated on "α-tetralon"-1-C¹⁴) proceeding from the 1-keto-1,2,3,4-tetrahydro naphthalene-1-C¹⁴. In this case the reaction took place without the separation of bromo-tetralon (V). There are 1 table and 24 references, 2 of which are Soviet.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskij institut imeni D.I.Mendeleyeva (Moscow Chemotechnological Institute imeni D.I.Mendeleyev)

Card 3/4

5(3)

AUTHORS: Vorozhtsov, N. N., Jr., Tochilkin, A. I. SOV/156-59-2-27/48

TITLE: The Catalytic Isomerization of 5-Bromo- and 5-Chloracenaphthenes
(Kataliticheskaya izomerizatsiya 5-brom- i 5-khloratsenaf-
tenov)

PERIODICAL: Nauchnyye doklady vrashey shkoly. Khimiya i khimicheskaya
tekhnologiya, 1959, Nr 2, pp 322-324 (USSR)

ABSTRACT: In a way similar to the catalytic isomerization of 1-bromo
naphthalene to 2-bromo naphthalene as well as to the cor-
responding chlorine compound in liquid phase (Refs 1, 2)
the authors endeavored the analogous isomerization of the
compounds mentioned in the title to the corresponding 4-
halogen-substituted derivatives. The experiments with 5-
bromo acenaphthene were carried out on anhydrous iron chloride
in the presence of hydrogen bromide at 100-150°. 5 - 14%
acenaphthene were produced from the reaction products as
well as 5 - 10% 3-bromo acenaphthene. The reaction took place
under considerable resinification. The formation of the com-
pounds mentioned is probably due to intermolecular reaction.
The transition of 5-bromo acenaphthene into the 3-substituted
isomer is in agreement with the experience hitherto made,

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The Catalytic Isomerization of 5-Bromo- and 5-Chloracenaphthenes SOV/156-59-2-27/48

namely that in the case of electrophilic substitution (nitration, sulfonation acylation) of acenaphthene only 5- and 3-substituted derivatives form. The preliminary experiments with acenaphthene led at 300-400° to carbon deposition on the aluminum silicate catalyst and to the formation of a mixture of hydrocarbons containing a minimum amount of naphthalene. 5-Cl-acenaphthene showed the same phenomena at 300°, beside this acenaphthene and an inconsiderable amount of 3-chlor-acenaphthene were formed. There are 7 references, 4 of which are Soviet.

PRESENTED BY : Kafedra organicheskikh krasiteley i promezhutochnykh produktov
Moskovskogo khimiko-tekhnologicheskogo instituta im. D. I.
Mendeleyeva
(Chair of Organic Dyes and Intermediate Products, Moscow
Institute of Chemical Technology imeni D. I. Mendeleyev)

SUBMITTED: January 15, 1959

Card 2/2

5(3)

SOV/156-59-2-28/48

AUTHORS: Vorozhtsov, N. N. Jr ., Tochilkin, A. I.

TITLE: The Synthesis of Some Acenaphthene Monohalides (Sintez nekotorykh monogaloidatsenaftenov)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1959, Nr 2, pp 325-329 (USSR)

ABSTRACT: 3-chloro- and 3-bromo acenaphthene and the corresponding 4-Cl- and 4-Br—compounds were synthesized the physical properties of which are shown by table 1. The production was carried out over the corresponding amines. As 4-bromine acenaphthene could not be produced according to Sandmeyer's reaction it was obtained by thermal decomposition of the bromine double salt of acenaphthene diazonium with zinc bromide. Table 2 gives the physical data of picrates, styphnates as well as 1,3,5-trinitrobenzene and 2,4,7-trinitrofluorenone complexes of the synthesized compounds and the 5-halogen substituted derivatives. The absorption spectra were taken in the ultraviolet for all bromine- and chloro-acenaphthenes (Figs 1 and 2 and the corresponding tables). 4-bromo acenaphthene has up to now not been known. There are 2 figures, 4 tables, and 13 references, 1 of which is Soviet.

Card 1/2

The Synthesis of Some Acenaphthene Monohalides SOV/156-59-2-28/48

PRESENTED BY: Kafedra organicheskikh krasiteley i promezhutochnykh produktov
Moskovskogo khimiko-tekhnologicheskogo instituta im. D. I.
Mendeleyeva
(Chair of Organic Dyes and Intermediate Products, Moscow
Institute of Chemical Technology imeni D. I. Mendeleyev)

SUBMITTED: January 15, 1959

Card 2/2

5(3)

SOV/63-4-1-18/31

AUTHORS: Shilov, Ye.A., Member of the UkrSSR Academy of Sciences,
Vorozhtsov, N.M., Corresponding Member of the USSR Academy of
Sciences

TITLE: The London Symposium on Theoretical Organic Chemistry (London-
skiy simpozium po teoreticheskoy organicheskoy khimii)

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 1,
pp 121-122 (USSR)

ABSTRACT: The British Chemical Society organized a symposium on September
15-17, 1958, in London. The symposium was attended by more than
850 chemists from various countries, among them three from the
USSR: the authors of this article and the Member-Correspondent
of the USSR Academy of Sciences O.A. Reutov.

ASSOCIATIONS: AN UkrSSR (Academy of Sciences of the UkrSSR). AN SSSR (USSR
Academy of Sciences)

Card 1/1

5(3)

SOV/63-4-2-38/39

AUTHORS: Vorozhtsov, Junior, N N.; Ryulina, A.I.

TITLE: The Interaction of 1,8-Dinitronaphthalene With Caustic Alkalis and the Following Transformation of the Reaction Product

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 2, pp 286-287 (USSR)

ABSTRACT: A water-methyl alcohol solution of NaOH transforms 1,8-dinitronaphthalene to 4-nitroso-5-nitro-1-naphthol. This substance is hydrated in alcohol on palladium-black to 4,5-diamino-1-naphthol. Oxidation by iron chloride in a hydrochloric medium produces 5-amino-1,4-naphthoquinone. Diazotization in acetic acid by means of nitrosyl sulfuric acid produces a diazo-compound which forms with β -naphthol an azo-dye. Butadiene-1,3 transforms the substance to 1-aminoanthraquinone.

Card 1/2 There are 11 references, 2 of which are Soviet and 9 German.

SOV/63-4-2-38/39

The Interaction of 1,8-Dinitronaphthalene With Caustic Alkalis and the Following Transformation of the Reaction Product

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut imeni D.I. Mendeleyeva
(Moscow Chemical-Technological Institute imeni D.I. Mendeleyev)

SUBMITTED: October 11, 1958

Card 2/2

5(3)

SOV/63-4-3-25/31

AUTHORS: Vorozhtsov, Jr., N.N., Koptug, V.A.

TITLE: The Study of the Isomerization of Monomethylnaphthalines

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 3,

ABSTRACT: It has been shown that 1-methylnaphthalene may be transformed into a 2-isomer by passing it over synthetic aluminosilicagel as catalyst at the optimum temperature of 300 - 350°C. Experiments were made with C¹⁴ in order to determine whether the isomeric transformations are due to the inner-molecular migration of the methyl group. The final product being 2-methylnaphthalene-1-C¹⁴, it is evident that 92.8% of isomerization proceeds within the molecule.
There are: 1 table and 4 references, 1 of which is Soviet, 1 American, 1 English and 1 German.

Card 1/2

The Study of the Isomerization of Monomethylnaphthalines

SOV/63-4-3-25/31

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskoy institut imeni D.I. Mendeleyeva
(Moscow Chemical-Technological Institute imeni D.I. Mendeleyev)

SUBMITTED: February 2, 1959

Card 2/2

5(3)

SOV/63-4-3-30/31

AUTHORS: Koptug, V.A., Gerasimova, T.N. Vorozhtsov Jr., N.N.

TITLE: Migration of Alkylsulfonyl Residue in Alkyl-(1-Chloronaphthyl-8)-Sulfones

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4, Nr 3, pp 414-415 (USSR)

ABSTRACT: The study of the reactions of peri-substituted naphthalenes has demonstrated that heating of methyl-(1-chloronaphthyl-8)-sulfones with concentrated hydrochloric acid for 5 hours at 200°C causes the irreversible migration of the sulfonyl residue. It has been shown that the migration of the alkylsulfonyl residue is characteristic only for 1,8-isomers and seemingly connected with the spatial interaction of peri-substitutes leading to the migration of these substitutes from the plane of the naphthalene nucleus.

Card 1/2 There are 4 non-Soviet references.

SOV/63-4-3-30/31

Migration of Alkylsulfonyl Residue in Alkyl-(1-Chloronaphthyl-8)-Sulfones

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiiy institut imeni D.I. Mendeleyeva
(Moscow Chemical-Technological Institute imeni D.I. Mendeleyev)

SUBMITTED: February 2, 1959

Card 2/2

5.3600

77296
SOV/63-4-6-30/37

AUTHORS: Koptug, V. A., Gerasimova, T. N., Vorozhtsov, N. N.,
Jr.

TITLE: Brief Communication. Isomeric Conversion of
Methyl-(1-Chloronaphthyl-8)-Sulfone

PERIODICAL: Khimicheskaya nauka i promyshlennost', 1959, Vol 4,
Nr 6, pp 807-808 (USSR)

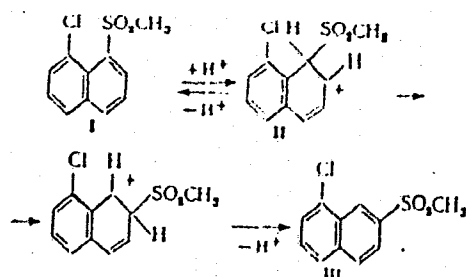
ABSTRACT: In the previous work (the same authors, Khim. nauka i
prom., 4, Nr 3, 414, 1959), it was shown that alkyl(1-
chloronaphthyl-8) sulfone, by heating with conc. HCl,
at 200-230° is isomerized into alkyl(1-chloronaphthyl-7)
sulfone (III) as follows:

Card 1/4

Brief Communication. Isomeric Conversion
of Methyl-(1-Chloronaphthyl-8)-Sulfone

77296

SOV/63-4-6-30/37

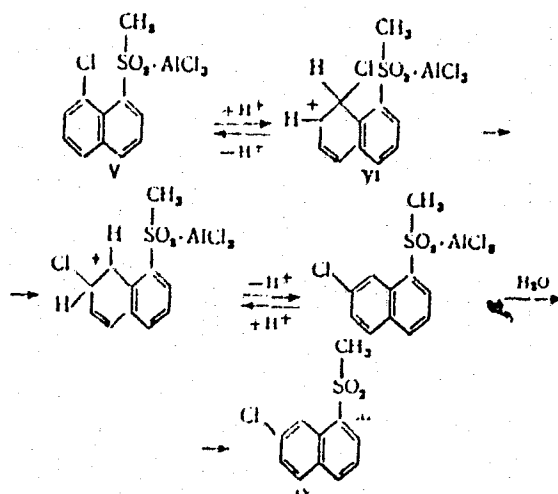


I was heated with 2 g/mole of $AlCl_3$, for 1 hr at 125°, in the presence of dry HCl, and methyl(2-chloronaphthyl-8) sulfone (IV) was obtained (in 50% yield) instead of III. In the above case the migration of chlorine atom occurred, instead of methyl-sulfonyl radical migration.

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Brief Communication. Isomeric Conversion
of Methyl-(1-Chloronaphthyl-8)-Sulfone

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SOV/63-4-6-30/37



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Brief Communication. Isomeric Conversion
of Methyl-(1-Chloronaphthyl-8)-Sulfone

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SOV/63-4-6-30/37

In the present work, the conversion of I in the presence of FeCl_3 was studied. Heating I with FeCl_3 (ratio: 1 to 0.5 g/mole), at 150° for 6 hr, in a stream of HCl forms III. The migration of chlorine atom was practically not observed. In the absence of catalyst, at $230-250^\circ$, and in a stream of HCl, the isomerization was not observed. There are 2 Soviet references.

ASSOCIATION: Mendeleev Moscow Chemical-Technological Institute
(Moskovskiy khimiko-tekhnologicheskii institut imeni
D. I. Mendeleeva)

SUBMITTED: May 10, 1959

Card 4/4

5(3)

AUTHORS: Vorozhtsov, N. N., jun., Koptug, V. A. SOV/79-29-5-29/75

TITLE: Investigation of Isomeric Transformations of Alkyl Naphthalenes (Izucheniye izomernykh prevrashcheniy alkilnaftalinov).
1. Isomerization of Monomethyl-Naphthalenes (1. Izomerizatsiya monometilnaftalinov)

PERIODICAL: Zhurnal obshehey khimii, 1959, Vol 29, Nr 5, pp 1541-1545 (USSR)

ABSTRACT: In the present paper the isomerization of monomethyl naphthalenes on the synthetic aluminum silicate catalyst in the temperature range of 270-450° was investigated in the hydrochloride stream and without it (Table). The results obtained show that the transformation of 1-methyl naphthalene into 2-isomers is a reversible process in contrast with the findings of reference 2. This was confirmed by the separation of 1-methyl naphthalene (in the form of a molecular compound with 2,4,7-trinitrofluorene - Ref 8) from the catalyzate obtained from 2-methyl naphthalene. The results indicated further that the optimum temperature for the isomerization is the range of 300-350°. At 320° per 1 l catalyst at least 140 g 1-methyl naphthalene can be passed through per hour. The yield of the

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Investigation of Isomeric Transformations of Alkyl
Naphthalenes.

SOV/79-29-5-29/75

1. Isomerization of Monomethyl-Naphthalenes.

fraction amounts there up to 75% at a content of 2-isomers of 60%. The side reaction which takes place there - the disproportionation - and which yields naphthalene and polymethyl naphthalenes is of minor importance. The monomethyl naphthalene fraction separated from coal tar is known to contain (Ref 12) about the same quantity of 1- and 2-isomers. A portion of 2-methyl naphthalene can be separated by freezing. The cleavage of the remaining mixture with 20-25% 2-isomers requires complicated methods (Refs 9 and 12). This mixture was found to be useful in the preparation of 2-methyl naphthalene. There are 1 table and 17 references, 2 of which are Soviet.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut imeni
D. I. Mendeleysva (Moscow Chemical-Technological Institute imeni
D. I. Mendeleysv)

SUBMITTED: May 4, 1958

Card 2/2

5 (3)

AUTHORS:

Vorozhtsov, N. N., junior, Koptug,
V. A.

SOV/79-29-5-32/75

TITLE:

Investigation of the Isomeric Transformations of Alkyl-naphthalenes (Izucheniye izomernykh prevrashcheniy alkilnaftalinov). II. Synthesis of 1-Methyl-naphthalene-1-C¹⁴ (Sintez 1-metilnaftalina-1-C¹⁴)

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 5, pp 1551-1554 (USSR)

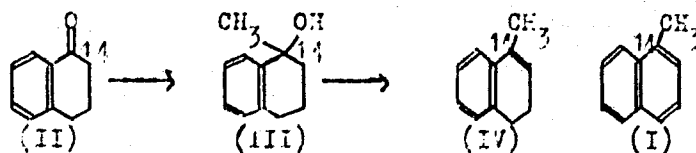
ABSTRACT:

In publications presently available 2-methyl-naphthalene-4-C¹⁴ (Ref 1) and 2-methyl-naphthalene-8-C¹⁴ (Ref 2) are described. In the same way (ring formation of γ -phenyl- β -methyl oleic acid and γ -(p-tolyl)-oleic acid tagged in the carboxyl group to give tetralones, reduction of the keto group and dehydrogenation of 2-methyl-tetrahydro-naphthalene in the presence of palladium) also 1-methyl-naphthalenes may be synthesized, but only with marking in the positions 4, 5 or 8. This way is not applicable to the synthesis mentioned in the title. It was therefore carried out on the basis of 1-keto-1, 2, 3, 4-tetrahydro-naphthalene-1-C¹⁴ according to the following

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Investigation of the Isomeric Transformations of SCV/79-29-5-32/75
Alkyl-naphthalenes. II. Synthesis of 1-Methyl-naphthalene-1-C¹⁴

scheme:



Due to the influence exerted by methyl magnesium bromide upon II, III resulted, which was transformed with potassium bisulfate at 120° into IV. The dehydrogenation of IV was carried out by heating with sulfur for 15 hours at 220°. The yield was 79.8 % with respect to the initial substance II. I. S. Isayeva and N. A. Morozova assisted in the synthesis described in the experimental section. The refractive index of the product obtained was lower than that given in publications for high-purity 1-methyl-naphthalene. Sulfur compounds, however, were not even quantitatively detected. Probably the substance produced still contained up to 1.5 % 1-methyl-1,2,3,4-tetrahydronaphthalene. In model experiments 1-methyl-naphthalene was therefore converted to nirate, afterwards liberated and distilled off. The determination of

Card 2/3

Investigation of the Isomeric Transformations of Alkyl-naphthalenes. II. Synthesis of 1-Methyl-naphthalene-1- C^{14} 30V/79-29-5-32/75

the radioactivity in the picrate was carried out according to reference 4. There are 12 references, 2 of which are Soviet.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut imeni D. I. Mendeleeva (Moscow Institute of Chemical Technology imeni D. I. Mendeleev)

SUBMITTED: May 4, 1958

Card 3/3

5 (3)

AUTHORS: Vorozhtsov, N. N. jun., Lisitsyn, V. N. SOV/79-29-7-62/83

TITLE: On the Conversions of Xylenols Over an Aluminosilicate Catalyst
(O prevrashchenii ksilenolov na alyumosilikatnom katalizatore)
II. Conversions of 1,2,4- and 1,3,4-Xylenols (II. Prevra-
shcheniye 1,2,4- i 1,3,4-ksilenolov)

PERIODICAL: Zhurnal obshchey khimii, 1959, Vol 29, Nr 7, pp 2302 - 2386
(USSR)

ABSTRACT: The authors point out in a foot-note that the oxy group is sub-
stituted on the 1-carbon atom. Previous studies of Vorozhtsov
and Lisitsyn on the effect of the aluminosilicate catalyst on
1,2,4-, 1,3,4-, and 1,3,5-xylenols in benzene at different tem-
peratures and for varying lengths of contact time (Ref 1) show-
ed that a rise in temperature to 350-450° decreases the amount
of phenol-cresol fraction in every case, while larger amounts
of the neutral compounds with boiling points at 100° and above
(including toluene) are obtained and depositions on the catalyst
also increase. Lengthening the time of contact has the same ef-
fect as a rise in temperature. These results indicate that the
conversion of the above xylenols on the aluminosilicate cata-
lyst may proceed differently at 350-450°. The main reactions

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On the Conversions of Xylenols Over an Aluminosilicate SOV/79-29-7-62/83
Catalyst. II. Conversions of 1,2,4- and 1,3,4-Xylenols

are probably disproportionation and isomerization (I) described by American authors for cresols and xylenols in contact with the above catalyst (Ref 2); further the reduction of the phenol homologs (II). The addition of benzene leads to a competitive reaction (III) in which the methyl group of the phenol homolog passes over to the benzene molecule. Similar reactions of alkyl groups of benzene derivatives have been described in publications (Refs 4-8), whereas the authors' present investigation of the reaction of xylenols with benzene indicates the possibility of a methyl group transfer to the benzene molecule from the molecule of a phenol compound. There are 3 tables and 11 references, 7 of which are Soviet.

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut imeni D. I. Mendeleyeva (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev)

SUBMITTED: June 16, 1958

Card 2/2

5 (2, 3)

AUTHORS:

Vorozhtsov jr, N. N., Corresponding SOV/20-127-6-22/51
Member AS USSR, Yakobson, G. G., Rubina, T. D.

TITLE:

On the Mechanism of Fluorochlorobenzene Amination by Metal
Amides and Aqueous Ammonia

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 6, pp 1225-1227
(USSR)

ABSTRACT:

As is known, neither fluorobenzene (Ref 1) nor fluorotoluene (Ref 2) react with the alkaline metal amides in liquid ammonia. The amination of compounds containing various halogens has hardly been investigated (Refs 3, 4). The authors studied the amination mentioned in the title in liquid and aqueous ammonia in the presence of copper chloride. In all cases investigated here, the chlorine atoms were replaced by the amino group. Neither the yield nor the composition of the amination products are practically influenced by the replacement of the sodium amide by lithium- or potassium amides. Table 1 shows the experimental results. A. N. Shikanov, student, took part in the experiments. The spectrum analysis was made by V. A. Plakhov. According to the authors' results, fluorobenzene is practically not aminated by aqueous ammonia at 250° within 6 h. The amination by metal amides

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On the Mechanism of Fluorochlorobenzene Amination by
Metal Amides and Aqueous Ammonia

SOV/20-127-6-22/51

probably proceeds via an intermediate formation of substituted dehydrobenzenes (Ref 3). The same product (I) is apparently formed from the o- and m-fluorochlorobenzene, while the product (II) is formed from the para-isomer. The isomeric composition of the amination products confirms the assumption concerning the influence of the inductive effect of the electronegative substituents (here fluorine) on the addition direction of the NH_2^- ion to substituted dehydrobenzenes (Ref 3). The mechanism of the catalytic exchange of the aromatically bound chlorine, as suggested by the 1st author (together with V. A. Kobelev, Ref 5), is recalled. According to this mechanism, the reaction starts with the addition of the catalyst to the molecule of the halogen derivative (see Scheme). In the addition product, the halogen is already very mobile, and reacts easily with ammonia whereby an amine is formed. Finally, some deliberations are made on the nature of the complex, on the basis of the above-mentioned results. There are 1 table and 6 references, 2 of which are Soviet.

Card 2/3

On the Mechanism of Fluorochlorobenzene Amination by
Metal Amides and Aqueous Ammonia

80V/20-127-6-22/51

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut im. D. I.
Mendeleyeva (Moscow Institute for Chemical Technology imeni D. I.
Mendeleyev)

SUBMITTED: May 27, 1959

Card 3/3

VOROZHTSOV, N.N., mladshiy; KOPTYUG, V.A.; KOMAGOROV, A.M.

Study of the mechanism of isomerization of naphthalene
nonosulfonic acids. Zhur. VKHO 5 no. 2:232-233 '60.

(MIRA 14:2)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni
D.I. Mendeleeva.

(Naphthalenesulfonic acid)

VOROZHTSOV, N.N., mladshiy; GERASIMOVA, T.N.; KARPOVA, Ye.N.; LISENKOVA,
G.S.

Preparation of 5-nitro-1,4-naphthoquinone and its condensation
with dienes. Zhur. VKHO 5 no.4:474-475 '60. (MIRA 13:12)

1. Moskovskiy khimiko-tehnologicheskii institut imeni D.I.Mendeleeva.
(Naphthoquinone) (Olefins)

VOROZHTSOV, N.N., mladshiy; SHEYN, S.M.

Exchange of a sulfonic group for a hydroxy group in the aromatic series. Part 5: Kinetics of the reactions between a sodium hydroxide solution and the sodium salts of 1-naphthalenesulfonic acid and 2-methyl-6-naphthalenesulfonic acid. Ukr. khim. zhur. 26 no.3:341-346 '60. (MIRA 13:7)

1. Nauchno-issledovatel'skiy institut organicheskikh poluproduktov i krasiteley, filial v g.Rubezhnom.

(Naphthalenesulfonic acid) (Sodium hydroxide)

VOROZHTSOV, N.N.; SHEYN, S.M.

Reaction involving the exchange of a sulfo-group for a hydroxyl group in the aromatic series. Part 6: Cleavage of β -naphthol in the course of the alkaline fusion of sodium β -naphthalenesulfonic acid. Ukr. khim. zhur. 26 no.4:490-495 '60. (MIRA 13:9)

1. Nauchno-issledovatel'skiy institut organicheskikh poluproduktov i krasiteley im. K.Ye. Voroshilova, filial v g.Rubezhnom.
(Naphthol) (Naphthalenesulfonic acid)

5,3620

77903
SOV/79-30-2-54/78

AUTHORS: Koptug, V. A., Gerasimova, T. N., Vorozhtsov, Jr., N. N.

TITLE: Steric Hindrance and the Reactivity of Organic Compounds.
I. Migration of the Alkylsulfonyl Radical in Alkyl
1-Chloronaphthyl -8 Sulfones

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 2, pp 612-618
(USSR)

ABSTRACT: Isomeric transformation of 1,8-dihalonaphthalenes proceeds easily even without catalysts; this is explained by the steric interaction of the halogen atoms in periposition. Van der Waals' radius of Cl is 1.80 A, that of Br 1.95 A, whereas the distance between C₁ and C₈ in the naphthalene molecule is only about 2.5 A. The molecule is subjected, therefore, to a deformation, and to a deviation of the halogen atoms from the plane of the naphthalene molecule, followed by a change in the values of the bond angles at C₁ and C₈. The hybridization of the valence electrons of similar atoms cannot correspond any longer to the pure

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Organic Compounds. I

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(sp^2)_p type of a plane trigonal system and approaches to some extent the tetrahedral (sp^3)-hybridization. This must facilitate the formation of an activated complex in the attack of these atoms by the electrophilic particle. The increased affinity of C_1 and C_8 atoms of the 1,8-disubstituted naphthalenes towards the electrophilic particles creates, in particular, favorable conditions for the protonation of these atoms and for the formation of σ -complexes. The authors assume, accordingly, that three types of transformations can take place in such cases, as shown in the formulas (1):

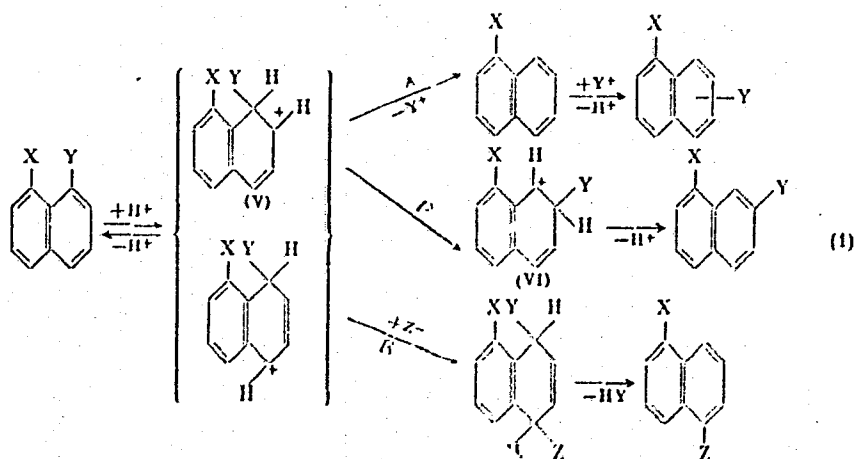
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FORMULA 1 ON FOLLOWING CARD (3/7)

Steric Hindrance and the Reactivity of Organic Compounds. I

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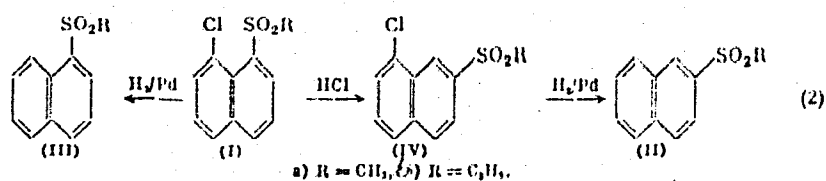
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Steric Hindrance and the Reactivity of
Organic Compounds. I

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The following transformations can serve as examples of the above reactions: 1,8-dibromo-2,7-dihydroxynaphthalene into 1,6-dibromo-2,7-dihydroxynaphthalene, reaction A; 1,8-dichloronaphthalene into the 1,5-isomer, reaction C ($X=Y=Z=Cl$); 1,8-dichloronaphthalene-3-sulfonic acid into 1,7-dichloronaphthalene, reaction B. The present study deals with the migration of the radical in similarly perisubstituted alkyl 1-chloronaphthyl-8 sulfones (I):



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Such sulfones were obtained on boiling for 3-5 hr a mixture of methanol solutions of sodium ethoxide and chloronaphthalenesulfinic acid with methyl iodide, ethyl iodide, or benzyl chloride. The sulfone precipitate was filtered, washed with 5% soda solution and water, and recrystallized from methanol. The following new sulfones were obtained: methyl 1-chloronaphthyl-5 sulfone (mp 141.0-141.5° C); methyl 1-chloronaphthyl-7 sulfone (IVa) (mp 160.5-161.0° C); methyl 1-chloronaphthyl-8 sulfone (Ia) (mp 126.5-127.0° C); methyl 2-chloronaphthyl-8 sulfone (mp 117.5-118.0° C); ethyl 1-chloronaphthyl-7 sulfone (IVb) (mp 122.0-122.5° C); ethyl 1-chloronaphthyl-8 sulfone (Ib) (mp 143.0-143.5° C); and benzyl 1-chloronaphthyl-8 sulfone (mp 170.5-171.0° C). Yield of the methyl chloronaphthyl sulfones was 72-88%; that of ethyl chloronaphthyl sulfones, 42-67%. Heating Ia and Ib with concentrated HCl at 200° C and 220-230° C, respectively, caused an irreversible migration of the alkylsulfonyl radical into 3-position and the formation of sulfones IVa and IVb in 40% and 60% yield, respectively. This migration was

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due to the steric interaction of the Cl atom and the sulfonyl radical which caused a deviation of these substituents from the plane of the naphthalene ring. The other sulfones did not change on heating with concentrated HCl; it follows that the migration of the sulfonyl radical is characteristic solely of the 1,8-isomers. Elimination of the chlorine atom was achieved by hydrogenation of the alkyl chloronaphthyl sulfones in methanolic alkali solution over Pd. In this reaction, methyl 1-chloronaphthyl-5 sulfone, methyl 1-chloronaphthyl-8 sulfone, and methyl 2-chloronaphthyl-8 sulfone gave, respectively, methyl naphthyl-1 sulfone (mp 101.5-102.0° C from methanol), and methyl 1-chloronaphthyl-7 sulfone gave methyl naphthyl-2 sulfone (mp 141-141.5° C). Similarly, ethyl 1-chloronaphthyl-8 sulfone gave ethyl naphthyl-1 sulfone (mp 88-89° C), and ethyl 1-chloronaphthyl-7 sulfone gave ethyl naphthyl-2 sulfone (mp 42-44.5° C). Yield of the dechlorinated sulfones was 83.5-97%. There are 1 table; and 31 references, 7 U.S., 6 U.K., 1 Canadian, 2 French, 1 Swedish, 1 Danish, 7 German, and 6 Soviet. The 5 most recent U.S. and U.K. references are: K. B. Everard, L. E. Sutton, J. Chem. Soc., 1949, 2312; D. M. Donaldson, J. M. Robertson, *ibid.*, 1953,

Card 6/7.

Steric Hindrance and the Reactivity of
Organic Compounds. I

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17; E. Harnik, F. H. Herbstein, G. M. J. Schmidt, *ibid.*,
1954, 3288; same authors, *ibid.*, 1954, 3303; L. Bateman,
F. W. Shipley, *ibid.*, 1958, 2888.

ASSOCIATION:

D. I. Mendeleyev Moscow Chemical-Technological Institute
(Moskovskiy khimiko-tekhnologicheskiy institut imeni
D. I. Mendeleyeva)

SUBMITTED:

February 24, 1959

Card 7/7

5.3300

78299
SOV/79-30-3-53/69

AUTHORS: Vorozhtsov, N. N., Jr., Koptug, V. A.

TITLE: Investigations of Isomeric Conversions of Alkyl-naphthalenes. III. Mechanism of Isomerization of Monomethylnaphthalenes

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol 30, Nr 3, pp 999-1007 (USSR)

ABSTRACT: Isomerization of 1-methylnaphthalene-1- C^{14} (I) over an alumina-silica catalyst at 320° in a flow of HCl was studied in order to explain the mechanism of conversion of monoalkylnaphthalenes. Synthesis and properties of I were described in the authors' previous work (ZhOKh, 29, 1551, 1959). It was found that under the above conditions I is mainly converted into 2-methylnaphthalene-1- C^{14} . Content of the latter in the 2-methylnaphthalene-x- C^{14} (II) obtained was determined by a new method worked out by the authors. The method is based on the removal of C_1

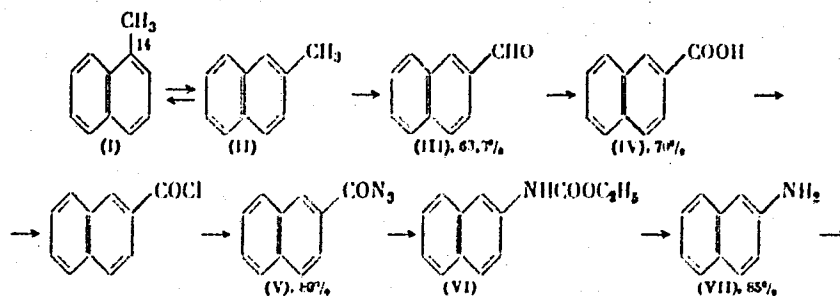
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Investigations of Isomeric Conversions of
Alkylnaphthalenes. III. Mechanism of
Isomerization of Monomethylnaphthalenes

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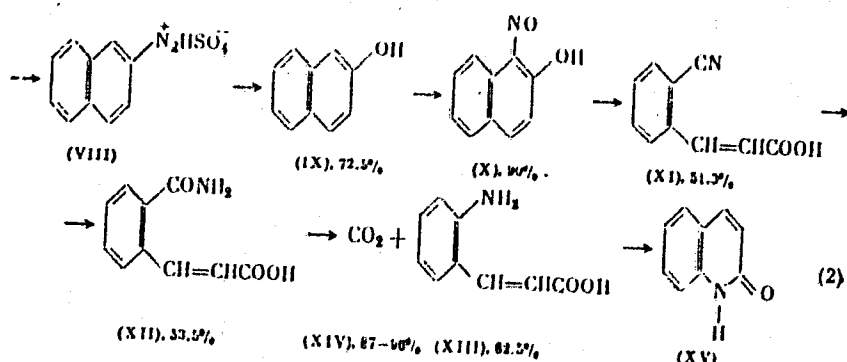
from the molecule and comparison of its radioactivity
with the radioactivity of the remaining part of the
molecule. The process can be summarized by the
following scheme:



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Investigations of Isomeric Conversions of
Alkylnaphthalenes. III. Mechanism of
Isomerization of Monomethylnaphthalenes

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Investigations of Isomeric Conversions of
Alkylnaphthalenes. III. Mechanism of
Isomerization of Monomethylnaphthalenes

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According to the radioactivity measured (see table),
the 2-isomer of I contains 94.5% 2-methylnaphthalene-1-
-C¹⁴.

a	(b)	
	(c)	%
<i>o</i> -C ₈ H ₇ (CONH ₂)CH=CHCOOH (XII)	4025 ± 2	100
CO ₂ (XIV)	3917 ± 20	97.3
<i>o</i> -C ₈ H ₇ (NH ₂)CH=CHCOOH (XIII)	230 ± 5	5.7
C ₈ H ₇ (NH ₂)CH=CHCO (XV)	216	5.4

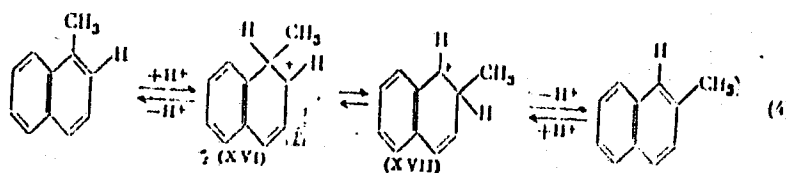
The intramolecular mechanism of isomerization of
monomethylnaphthalene is proved by the data obtained.
It can be expressed as follows:

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Investigations of Isomeric Conversions of
Alkynaphthalenes. III. Mechanism of
Isomerization of Monomethylnaphthalenes

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There are 1 table; and 32 references, 7 U.S., 2 U.K., 8 German, 1 Swiss, 14 Soviet. The 5 most recent U.S. and U.K. references are: E. R. Boedeker, W. E. Erner, J. Am. Chem. Soc., 76, 3591 (1954); I. Pigman, E. Del Bel, M. B. Neuworth, J. Am. Chem. Soc., 76, 6169 (1954); H C. Brown, H. Jungk, J. Am. Chem. Soc., 77, 5579 (1955); N. Donaldson, The Chemistry and Technology of Naphthalene Compounds, London, 3 (1958); Elsevier's Encyclopedia of Org. Chem. Series III, Vol 12B, 99 (1952).

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Investigations of Isomeric Conversions of
Alkynaphthalenes. III. Mechanism of
Isomerization of Monomethylnaphthalenes

78299
SOV/79-30-3-53/69

ASSOCIATION: D. I. Mendeleev Moscow Institute of Chemical Technology
(Moskovskiy khimiko-tekhnologicheskij institut imeni
D. I. Mendeleyeva)

SUBMITTED: April 16, 1959

Card 6/6

VOROZHTSOV, N.N., LISITSYN, V.N.

Synthesis of 1,5- and 2,6-chloronaphthols. Zhur. ob. khim. 30
no.9:2816-2817 S '60. (MIRA 13:9)

1. Moskovskiy khimiko-tekhnologicheskii institut im. D.I. Mendeleeva.
(Naphthol)

VOROZHTSOV, N.N., mladshiy; YAKOBSON, G.G.; RUBINA, T.D.

Amination of polyhalo derivatives of benzene. Dokl. AN SSSR 134
no.4:821-823 O '60. (MIRA 13:9)

1. Moskovskiy khimiko-tekhnologicheskii institut im. D.I.
Mendeleeva. 2. Chlen-korrespondent AN SSSR (for Vorozhtsov).
(Benzene) (Amination)

VOROZHTSOV, N.H.; RODIONOV, V.Ya.

Reaction of naphthalene with sulfur. Dokl. AN SSSR 134 no.5:1085-
1086 0 '60. (MIRA 13:10)

1. Moskovskiy khimiko-tekhnologicheskii institut im. D.I.Mendeleeva.
Chlen-korrespondent AN SSSR (for Vorozhtsov).
(Naphthalene) (Sulfur)

VOROZHTSOV, ml., N.N.; YAKOBSON, G.G.; KRIZNECHKOVSKAYA, N.I.; D'YACHENKO, A.I.;
SHIKANOVA, I.V.

Aromatic fluoro derivatives. Part 4: Substitution of chlorine
for the nitro group in nitrohalo derivatives of benzene. Zhur.
ob. khim. 31 no.4:1222-1226 Ap '61. (MIRA 14:4)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni D. I.
Mendeleeva.

(Benzene) (Nitro group) (Chlorine).

VOROZHTSOV, ml., N.N.; YAKOBSON, G.G.; KRIZHECHKOVSKAYA, N.I.

Aromatic fluoro derivatives. Part 5: Nitration of fluorochlorobenzenes. Zhur. ob. khim. 31 no.4:1227-1229 Ap '61.
(MIRA 14:4)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni D. I. Mendeleeva.

(Fluorine organic compounds)
(Nitration) (Benzene)

VOROZHTSOV, ml., N.N.; YAKOBSON, G.G.; DENISOVA, L.I.

Aromatic fluoro derivatives. Part 6: Catalytic reduction of
aromatic fluoronitro compounds. Zhur. ob.khim. 31 no.4:1229-
1232 Ap '61. (MIRA 14:4)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni D. I.
Mendeleeva.

(Fluorine organic compounds)
(Aniline) (Reduction, Chemical)

VOROZHTSOV, N.N.; mladshiy; YAKOBSON, G.G.; KRIZHECHKOVSKAYA, N.I.

Aromatic fluoro derivatives. Part 7: Preparation of fluorochloro-
benzenes. Zhur.ob.khim. 31 no.5:1674-1678 My '61. (MIRA 14:5)

1. Moskovskiy khimiko-tekhnologicheskoy institut imeni D.I.Mendeleyeva.
(Benzene)